

REMARKS

Claims 1-4, and 15-22 are pending in the application; the status of the claims is as follows:

Claims 2-4, and 15-22 are withdrawn from consideration.

Claim 1 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicant's Admitted Prior Art (Figs. 1-9) ("AAPA") in view of U.S. Patent No. 2,419,724 to Millard et al ("Millard").

The indication, in the Office Action, that the Examiner has no objections to the drawings filed on March 9, 2001, is noted with appreciation.

35 U.S.C. § 103(a) Rejection

The present claims are directed to a method for manufacturing a hollow rack shaft from rectangular plate stock. The plate stock is die-pressed to form a channel generally having a "U"-shaped cross section, although some portion of the channel is flat-bottomed. Rack teeth are formed in the flat bottomed portion of the channel, and the sides of the channel are then worked so that the channel is formed into a tube.

When the plate stock is formed into a channel, different stresses in the flat-bottomed and round-bottomed portion of the channel can cause the workpiece to bow longitudinally, *i.e.*, along its length. The claimed method uses a channel forming die shaped so that the plate is bent longitudinally as well as laterally, wherein the amount of the longitudinal bend is selected to compensate for any longitudinal bowing. For example, claim 1 recites:

"a first step for forming a substantially flat and rectangular plate workpiece into a gutter-like shaped workpiece, . . .

"wherein a pressing surface of a pair of dies used in said first step is inclined in a longitudinal direction of said workpiece relative to a pressing

surface of a second pair of dies used in said first step so as to cancel elastic recovering of said workpiece when said workpiece is removed from said die set.”

It is respectfully submitted that this is not taught or suggested by the prior art.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant’s disclosure. MPEP 2142 citing *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

The rejection of claim 1 under 35 U.S.C. § 103(a), as being unpatentable over AAPA in view of Millard, is respectfully traversed because there is no motivation to make the combination and because the combination fails to teach or suggest all claim elements.

AAPA teaches pressing a rectangular plate between suitable dies to form a channel having a flat bottom in a middle portion of the channel and a rounded bottom elsewhere. Millard teaches a device for forming rectangular plates into channels, wherein the device operates “in such a manner that the work is not subjected to compressing, compacting, or clamping contact between opposing bending elements, but is only contacted by the apparatus at the lines, zones or fulcrum of bend.” Moreover, the device is “to be distinguished from a method of fabrication in which the metal of the work is clamped between opposing dies.” Column 4, lines 29-55.

A proposed modification cannot change the principle of operation of a reference. If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are

not sufficient to render the claims *prima facie* obvious. MPEP 2143.01 citing *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959). Here, AAPA teaches to form the channel by pressing the plate stock between suitable die. Millard expressly teaches against the use of die. Incorporating the teachings of Millard into AAPA would require a change in the principle of operation of either the AAPA device, *e.g.*, so that a die is not used, or of the Millard device, *e.g.*, so that a die is used. Accordingly, there can be no motivation to combine the references as suggested in the Office Action, and the rejection should be withdrawn.

Furthermore, a prior art reference must be considered in its entirety, *i.e.*, as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984). It is impermissible hindsight to use applicant's own disclosure as a guide to pick and choose specific features from the prior art to assert against applicant's claims; a prior art reference must be considered in its entirety. The instant claim describes a method in which rectangular plate stock is pressed between dies to form a 'gutter-like' shape. Millard teaches forming a rectangular plate P into channels using spaced apart work contacting members 16. Fig. 4. Indeed, Millard expressly teaches away from pressing a workpiece between dies. *See* column 4, lines 47-55. Thus, one pressing a rectangular plate between dies to a form channel would not be motivated to look to Millard, because Millard says to not use dies. Accordingly, the proposed combination is improper and the rejection of claim 1 as being obvious over AAPA in view of Millard should be withdrawn.

Moreover, even assuming *arguendo* that the combination were proper, the combination of AAPA and Millard fails to teach or suggest all of the limitations of claim 1. Millard teaches that when bending a plate to form a flanged, "U"-shaped channel, the flanges tend to spring back when the plate/channel is released from the bending device. As a result, the flanges are not even with each other. To compensate, Millard teaches to bend the plate beyond the horizontal so that after the 'spring back,' the flanges will have the desired alignment. Note that the compensating bending taught by Millard is in

the same direction or about the same axis as the initial bending of the plate. However, no teaching is provided as to compensatory bending in any other direction.

At most, the combination of AAPA and Millard suggests that when a rectangular plate is formed into a "U"-shaped channel, the legs of the channel would spring back somewhat, thereby causing the "U" to open a bit wider at the top. To compensate Millard teaches that the sides should be bent beyond the desired amount so that after spring back the desired bend is attained. That is, when forming the channel, the top of the "U" should be made narrower than desired so that after spring back occurs, the desired "U"-shape is attained. It is respectfully submitted that this is not what is claimed.

Rather, claim 1 requires that the "pressing surface of a pair of dies used in said first step is inclined in a longitudinal direction of said workpiece relative to a pressing surface of a second pair of dies used in said first step so as to cancel elastic recovering of said workpiece when said workpiece is removed from said die set." That is, the die used to work the rectangular plate so that it is gutter-like is also inclined along the length of the gutter, *i.e.*, in the longitudinal direction of the work piece. In contrast, Millard provides no teaching whatsoever with regard to bending the work piece along the length of the channel. The only bending taught by Millard is across the width of the channel/plate, *i.e.*, in the lateral direction of the workpiece. Accordingly, the combination of AAPA and Millard fails to teach or suggest the elements of claim 1, and the rejection of claim 1 under 35 U.S.C. § 103(a) should be reconsidered and withdrawn.

CONCLUSION

Wherefore, in view of the foregoing amendments and remarks, this application is considered to be in condition for allowance, and an early reconsideration and a Notice of Allowance are earnestly solicited.


Any fee required by this document other than the issue fee, and not submitted herewith should be charged to Sidley Austin Brown & Wood LLP's Deposit Account No. 18-1260. Any refund should be credited to the same account.

Application No. 09/803,560
Amendment dated September 2, 2004
Reply to Office Action of June 4, 2004

If an extension of time is required to enable this document to be timely filed and there is no separate Petition for Extension of Time filed herewith, this document is to be construed as also constituting a Petition for Extension of Time Under 37 C.F.R. § 1.136(a) for a period of time sufficient to enable this document to be timely filed.

Any other fee required for such Petition for Extension of Time and any other fee required by this document pursuant to 37 C.F.R. §§ 1.16 and 1.17, other than the issue fee, and not submitted herewith should be charged to Sidley Austin Brown & Wood LLP's Deposit Account No. 18-1260. Any refund should be credited to the same account.

Respectfully submitted,

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September 2, 2004

DA1 297990v4